AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of optically encoding data for transmission over a wavelength division multiplexed optical communications system comprising the steps of:

generating a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

filtering the pulses by way of a filter to produce carrier pulses extending over more than one time slot; and

modulating the pulses with data for transmission; wherein

for each of at least some of the carrier pulses, the filter gives rise to the corresponding carrier pulse ~~pulses~~ having a temporal profile with a minimum substantially in the center of each of the time slots adjacent to the time slot for that corresponding carrier pulse, the temporal profile of the corresponding carrier pulse further having ~~and with~~ an oscillating tail that extends from the minimum into at least one time slot that is even further from ~~to each of the time slots adjacent to the time slots having the minimum that are not~~ the time slot for the corresponding carrier pulse.

2. (Cancelled).

3. (Currently Amended) A method according to claim 1, wherein the filtered carrier pulses each have a substantially flat top spectral profile.

4. (Cancelled).

5. (Previously Presented) A method according to claim 1, wherein the step of modulating the pulses with data is performed before the filtering step.

6. (Previously Presented) A transmitter for producing an optical data signal for transmission over a wavelength division multiplexer optical communication system comprising:

means for producing a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

a filter having a spectral profile giving rise to carrier pulses, each carrier pulse having ~~with~~ a temporal profile extending over more than one time slot, the temporal profile having a minimum substantially in the center of each of the time slots adjacent to the time slot for that corresponding carrier pulse, the temporal profile of the corresponding carrier pulse further ~~and~~ having an oscillating tail that extends from the minimum into at least one time slot that is even further from ~~to each of the time slots adjacent to the time slots having the minimum that are not~~ the time slot for the corresponding carrier pulse; and

modulating means for modulating the pulses with data for transmission.

7. (Previously Presented) A transmitter according to claim 6, wherein the filter has a substantially flat top spectral profile.

8-9. (Cancelled).

10. (Previously Presented) A method according to claim 1, wherein the filter is detuned to optimize transmission performance.

11. (Previously Presented) A method according to claim 1, wherein the filter is a super-Gaussian 6^{th} order bandpass filter.

12. (Previously Presented) A method according to claim 1, wherein modulating the pulses with data for transmission is performed by a Mach Zehnder modulator.

13. (Previously Presented) A method according to claim 1, wherein a first portion of the oscillating tail rises as it extends from the minimum to a local maximum and a second portion of the oscillating tail falls from the local maxima as it crosses into the time slots adjacent to the time slots having the minimum.

14. (Currently Amended) A transmitter according to claim 6, wherein the modulating means is placed in the transmitter before the filter in a signal path of the transmitter.

15. (Currently Amended) A transmitter according to claim 14, wherein an amplifier is placed between the modulating means and the filter in the signal path of the transmitter.

16. (Previously Presented) A transmitter according to claim 6, wherein the modulating means a Mach Zehnder modulator.

17. (Previously Presented) A transmitter according to claim 6, wherein the filter is a super-Gaussian 6^{th} order bandpass filter.

18. (Previously Presented) A transmitter according to claim 6, wherein a first portion of the oscillating tail rises as it extends from the minimum and a second portion of the oscillating tail falls in relation to the first portion as it crosses into the time slots adjacent to the time slots having the minimum.

19. (Currently Amended) A transmitter for producing an optical data signal for transmission over a wavelength division multiplexer optical communication system comprising:

means for producing a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;

a filter having a spectral profile giving rise to carrier pulses, each carrier pulse having ~~with~~ a substantially Sinc shaped temporal profile extending over more than one time slot, the substantially Sinc shaped temporal profile having a minimum substantially in the center of each of the time slots adjacent to the time slot for that corresponding carrier pulse; and

modulating means for modulating the pulses with data for transmission.

20. (Currently Amended) A transmitter according to claim 19, wherein the substantially Sinc shaped temporal profile also has an oscillating tail that extends from the minimum to each of the time slots adjacent to the time slots having the minimum that are not the time slot for the corresponding carrier pulse.

21. (Previously Presented) A transmitter according to claim 20, wherein a first portion of the oscillating tail rises as it extends from the minimum to a local maximum and a second portion of the oscillating tail falls from the local maxima as it crosses into the time slots adjacent to the time slots having the minimum.

22. (Previously Presented) A transmitter according to claim 19, wherein the filter is detuned to optimize transmission performance.

23. (Previously Presented) A transmitter according to claim 19, wherein the modulating means a Mach Zehnder modulator.

24. (Previously Presented) A transmitter according to claim 19, wherein the filter is a super-Gaussian 6^{th} order bandpass filter.